II-03.01 General

The following is a summary and guidance for the coordination and facilitation of development activities with other Design Sections, Divisions, Districts, FHWA, etc.

II-03.02 Safety Review

The Design Division - Traffic Section provides a safety review by evaluating the data obtained in the project survey for new or reconstruction projects and in the Manual 90-1 survey for 3R type projects. The safety review is used to determine which roadside obstructions are cost-effective to eliminate, move outside the roadway clear zone, move outside the roadway clearance to obstruction, or make crash-worthy. Obstructions to an errant vehicle leaving the roadway include non-yielding non-breakaway supports, lighting and utility poles, signal standards, culvert openings greater than 30 inches in diameter, box culvert openings of all sizes, bridge rail ends, bridge piers, trees greater than 4 inches in diameter, large rocks, foreslopes steeper than 3H :1V, and water greater than 2 feet deep. The safety review recommends cost-effective safety improvements to be summarized and evaluated in the project concept report. Section III–14 of the Design Manual and the Manual 90-1 provide the procedures for completing the safety review.

II-03.03 Traffic Data

The Planning and Programming Division - Traffic Data Section provides current and forecast traffic volumes, and current and forecast pavement loadings or equivalent single axle loadings (ESALS), for the proposed project. This information is used for the traffic operation analysis and to develop pavement surface thickness recommendations. The traffic data information should be summarized for evaluation in the project concept report.

II-03.04 Pavement Condition Information

The Planning and Programming Division - Pavement Management Section provides a five year historical summary of the pavement conditions and maintenance costs for the proposed project. Pavement conditions are obtained from Pavement Management Data and may include information about pavement distress and ride. The pavement condition information is summarized in the project concept report and is used to evaluate the appropriate scope of work and proposed project improvements.

II-03.05 Traffic Operations

The Planning and Programming Division - Traffic Operations Section provides a traffic operations analysis and report which may consist of: traffic operation and capacity, traffic control needs, crash history and crash potential, and lighting needs. The traffic operations analysis and reports are sometimes omitted or abbreviated based on the type of project and

proposed scope of work. Sometimes the crash analysis and lighting study are prepared as separate reports.

The traffic operation reports are based on the Manual on Uniform Traffic Control Devices and the Highway Capacity Manual.

II-03.05.1 Traffic Operations and Capacity Analysis

The traffic operation analysis is completed for all major intersections along the project corridor. The analysis must include: the determination for number of traffic lanes, the signal phasing, timing and coordination, the identification of operational problems or needs, and the establishment of the level of service (LOS) for highway segments and intersections, signal progression needs, and intersection design recommendations.

II-03.05.2 Traffic Control Analysis

The traffic control analysis is used to determine whether traffic control devices are needed along the project corridor. Traffic control devices include traffic signs, pavement markings, flashing beacons and traffic signals. The analysis must include: traffic signal warrants and needs, flashing beacon warrants and needs, and pedestrian and school crossing needs.

II-03.05.3 Crash Analysis

The crash analysis is used to identify high-crash locations and determine whether corrective measures are necessary, evaluate various design features and corrective measures (permanent, temporary, or staged to accommodate budget constraints), improve overall geometric design, and provide data for education or enforcement programs. The review is conducted on the recorded crashes for a five year period.

II-03.05.4 Lighting Analysis

The highway lighting analysis is used to determine whether lighting, (new, improved, or additional), is warranted.

II-03.06 Soils and Surfacing Recommendations

The following reports and recommendations are usually provided by the Materials and Research Division and should be incorporated into the project concept report, if available.

II-03.06.1 Surface Thickness Recommendations

The report provides HBP pavement, PCC pavement, aggregate base thickness recommendations, and pavement design life. Asphalt Depth Core Data is normally included to establish existing surfacing depths and to develop blended base projects. This information is included in the project concept report and is used to develop the appropriate scope of work and proposed project improvements. The report should document the engineering analysis used to determine the recommendations.

II-03.06.2 Linear Soil Survey

The report identifies soil classifications, properties, moisture contents, and provides design recommendations. The design recommendations generally address subcuts, scarification, compaction, backfill materials, slopes, geotextile fabrics, etc. The Linear Soils Reports are sometimes omitted or abbreviated based on the type of project and proposed scope of work, such as restorations and resurfacing projects.

II-03.06.3 Preliminary HBP Mix Recommendations

This report provides design recommendations for HBP pavements including HBP aggregate classification, compaction requirements and specifications, asphalt cement classification, and asphalt cement percentage. The report is used to estimate plan quantities.

II-03.06.4 Bridge Foundations and Consolidation Report.

This report will provide bridge soil boring data, analysis and design recommendations for bridge piling and foundation design, embankment consolidation, and slope stability problems which may affect bridge design and construction.

II-03.07 Field Review

Generally, a field review will be conducted for all major highway construction projects. The field review is conducted prior to or in conjunction with the beginning of the project concept report. The field review is used to verify office information and to determine if any additional materials testing or traffic analysis is necessary. The field review also provides all participants of the project a chance to get an on-site look at the proposed project to discuss project alternatives and possible problem areas. A good field review will greatly improve project coordination and general project comprehension.

Developing a field review agenda and project information packet (preliminary project information and data available before field review) for attendees is very instrumental in achieving effective results when conducting the field review discussion. The information needed

includes engineering data on existing pavement condition, geometry, structures, traffic operations and milestone schedule.

Field review invitations should be sent to the same parties that are to receive the draft PCR for comment. See distribution guidelines in Appendix II–03 B. Field review invitations should also be sent to agencies who may be affected, interested, or have expertise related to some impact due to the project. Note: Field Review schedules should always be made to accommodate Design, District, and FHWA participants.

II-03.07.1 Field Review Outline

A field review and discussion should generally include the following:

- Visual evaluation of roadway conditions, structures, drainage, railroad crossing, traffic control devices, etc.
- Verification of beginning and ending points of the project and compatibility of the proposed project with adjacent segments of the roadway.
- Cursory review of presently compiled project information
  - Existing Typical Section
  - Project history
- Purpose and need for project
- Scope of project, possible alternatives, and compatibility of the proposed alternatives with adjacent segments of the roadway
- Identify possible problem areas:
  - Scope of additional surveys and material testing
  - Review existing and potential right of way needs
  - Review structures and conditions
  - Review potential environmental and social issues - How will the number and severity of environmental issues affect how the project is advanced? Note any potential 4f issues (parks, grasslands, hazardous waste sites, etc)
- Railroad Crossing Review
  - See Section II-03.12 Railroad Crossing Review and Appendix II-03A to discuss and complete this review

- Recommendations should be discussed and included in the project concept report

■ Review Milestone - activities and schedule

- Scope of additional surveys, if needed
- Scope of additional material testing, if needed
- Scope of additional traffic analysis, if needed
- Extent of public involvement - Is a public input meeting or informational meeting needed?

■ Extent of possible city involvement and participation. The District should have made contact with the respective city at the time the project was planned so the city becomes part of the scoping of the project.

■ Number and types of environmental documents. (See comments on multiple projects addressed with one environmental document, Section II–05.)

After the field review is completed, a summary of the field review discussion should be documented and sent to the people who attended the meeting and the project file.

II-03.08 Management Presentation

A management presentation is required on "Strategic Projects," as identified on the Project Development Schedule (PDS) published by the Planning and Programming Division. The presentation will occur after the initial field review, and before the development of the project concept report. The purpose of this review is to provide guidance and direction to the designer or concept report author on the project scope of proposed improvements. This early management concurrence of the project scope of proposed improvements is an effort to streamline and improve the efficiency to the project development process and reduce the time spent developing the formal project concept report.

The designer or concept report writer will provide a presentation to management that summarizes the scoping and field review activities. The presentation shall be complete with existing roadway data and photographs, current roadway standards, and options for resurfacing, restoration, rehabilitation, and reconstruction. The project concept report will be developed only for alternatives or options that have been pre-approved, based on the management presentation.

Attendees at the presentation should include the Deputy Director of Engineering, Director of Infrastructure Support, Director of Transportation Program Services, Director of Operations, and the affected Division/District Engineers.

II-03.09 Bridge Preliminary Concept

The Bridge Division will prepare bridge preliminary concepts documenting the bridge number, description, condition, supporting data, and proposed improvements or recommendations for the bridges and box culverts within the proposed project limits. The bridge preliminary concept report is usually completed shortly after the field review and should be incorporated into the project concept report. All bridges, box culverts, and large centerline pipes are structurally and hydraulically analyzed and an improvement is proposed, if required.

II-03.10 Wetlands Review

Wetland reviews are always necessary if there are proposed improvements that disturb existing ground cover such as slope flattening, culvert extension, widening, and grading. Projects that have safety reviews often have recommended improvements that cause environmental impacts. Any feature impacting wetlands needs to be addressed, even if the impact is very small.

Two different degrees of wetland reviews have been implemented in the milestone process: "Type 1 Wetland and Tree Review" (T1WTR) and "Type 2 Wetland and Tree Review" (T2WTR).

T1WTR's will be used on projects with small amounts of earthwork (pipe and box culvert extensions or replacement, approach slope flattening, etc.), where the total potential for wetland impacts due to earthwork is usually one acre or less. The entire disturbed area beyond the existing toe of slope will be mitigated as an impacted wetland or impacted tree loss area. T1WTR's will usually be done by the project concept report (PCR) author or their designee.

T2WTR's are to be used on projects where the total potential for wetland impacts is typically greater than one acre. T2WTR's will be coordinated through the Design Division, Engineering and Environmental Section.

The initial type of wetland review will be assigned through the milestone review process. However, the required type of review may change if the amount of assumed earthwork changes the total potential wetland impacts from less than one acre to greater than one acre or vice versa.

The following table is an overview of the required tasks and corresponding responsible party required to complete the wetland review:

Step No.	Milestone Tasks for Wetland Review Activity	Responsible Party	
		Type 1 Wetland and Tree Review	Type 2 Wetland and Tree Review
1	Base Maps Supplied	PCR Author or designee	PCR Author or designee
2	Wetland Field Review	NA	Staff Biologist / Consultant
3	Tree Field Review	PCR Author or designee	Staff Biologist / Consultant
4	Wetland and Tree Delineation Transmittal	NA	Staff Biologist / Consultant
5	Wetland and Tree Impact Calculation & Transmittal	PCR Author or designee	PCR Author or designee
6	Wetland and Tree Statement	PCR Author or designee	Staff Biologist
7	Mitigation Tracking	Engineering and Environmental Section	Engineering and Environmental Section

Step 1 - Base Maps Supplied

T1WTR's only need a sketch or illustration (preferably old grading plan and profiles) accurate enough to perform the calculations in Step 5 (Wetland Impact Calculation & Transmittal).

T2WTR's usually require full project delineation. The PCR author should discuss the types of needed base maps with the staff biologist. Usually grading plans or aerial photos are required. PCR authors, located in the central office, may be asked to obtain the USGS topographical and National Wetland Inventory (NWI) maps.

Both T1WTR's and T2WTR's should include a legal description of the project location (e.g. section, township, and range). This description will be used for the 404 permit, if required.

The PCR author or designee is responsible for suppling the base map information.

Step 2 - Wetland Field Review

T1WTR's do not require field verification because earthwork beyond the toe of slope will be mitigated as wetland impacts. However, pictures of all temporarily impacted areas are required (e.g. on-site box culvert detours and staging areas).

T2WTR requirements and methods are discussed in the 1987 Corps of Engineers "Wetland Delineation Manual" and the NDDOT Guidance for Wetland Delineations. Maintenance type earthwork (e.g. ditch cleanout to restore original ditch gradeline) may not involve wetlands. Therefore, this type of earthwork will be verified and excluded from wetland impacts.

Step 3 - Tree Field Review

Both T1WTR and T2WTR's should inspect the project for potential tree impacts. The Tree Field Review for T1WTR is to be conducted by the PCR author or designee. The Tree Field Review for T2WTR is to be conducted by the staff biologist/consultant.

For all alternatives, identify the trees which meet the size threshold and that will be impacted. If the diameter of deciduous tress (those shedding foliage at the end of the growing season) is less then three inches, measured 24 inches above the ground surface, and they are shorter than 15 feet in height, they do not need to be counted. Evergreen trees that are shorter than 5 feet do not need to be counted. Include impacts related to needed construction staging and detour routes. If it is not feasible to count and measure every tree impact, contact the Engineering and Environmental Section to determine a method of identifying project tree impacts.

Trees that are mitigated at a rural location will be mitigated at a 2:1 ratio. Trees mitigated at urban landscaped location will be mitigated at a 1:1 ratio. Trees that are mitigated at an established tree bank will be mitigated at a 1:1 ratio. These ratios are based on survival rates. The project tree mitigation ratio should be discussed in the environmental document.

Step 4 - Wetland and Tree Delineation Transmittal

This step is not applicable to T1WTR. For T2WTR's, this step will simply be the official filing of the wetland delineation in the Engineering and Environmental Section's file and delivery of the delineation to the PCR author.

Step 5 - Wetland and Tree Impact Calculation & Transmittal

For T1WTR, all earthwork disturbances beyond the toe of slope are assumed wetland impacts. Wetland impacts are usually measured in terms of area (acres, to nearest 0.01), from the existing toe of slope to the proposed toe of slope. This calculated wetland impact will be used for mitigation and documentation purposes. Appendix II-3C and II-3D contain a table of wetland calculation for approach slope flattening and a diagram showing the impact area respectively. If the assumed wetland impacts are greater than one acre, contact the Engineering and Environmental Section for further guidance.

T2WTR calculations use the delineation provided by the staff biologist/consultant. The wetland impacts are usually measured in terms of area (acres, to nearest 0.01), from the existing toe of slope to the proposed toe of slope.

Both T1WTR's and T2WTR's should have impacts itemized for each wetland location (e.g. list multiple box culverts impacts separately).

Detailed calculations for both T1WTR and T2WTR should be submitted to the Engineering and Environmental Section.

Step 6 - Wetland and Tree Statement

Wetland and Tree Statements for T1WTR are written by the PCR author. Note the PCR author may have to contact the staff biologist to discuss the mitigation method and site. The Wetland and Tree Statement must be included in both the draft and final PCR, under the "Impacts" section. Wetland and tree statements for T2WTR shall be coordinated with the staff biologist.

Wetland statements should contain the following information:

A. Note if wetland calculations are based on assumed total potential wetland impacts or from wetland delineation conducted by the staff biologist/consultant.

   Also note the extent of the delineation. Explain what areas were physically reviewed (example: all of the right of way versus selected review areas).

B. For Type 2 delineations, state the date of field delineation and the person conducting the delineation.

C. Summarize the amount of assumed or actual permanent wetland and tree impacts for all alternatives.

D. Summarize the amount of temporary wetland impacts to be restored at the existing location (e.g. on-site box culvert detours and staging areas).

E. State the method and site or location of mitigation (e.g. on- or off-site).

F. If the project involves wetlands and/or tree impacts, discuss the specific on-site locations and/or locations adjacent to the project that may be suitable for mitigation development.

Step 7 - Mitigation Tracking

The Engineering and Environmental Section will use the impacts noted in the PCR wetland and tree statement to track mitigation. If the wetland impacts are revised during the final design and a 404 Permit is required, the impacts in the 404 Permit will be used to track mitigation. If the scope of the project or wetland impacts changes from what is noted in the PCR, the designer is responsible for notifying the Engineering and Environmental Section.

II-03.11 Section 106 Compliance (Cultural Resources)

The National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) require consideration of impacts to significant cultural resources and historic properties, respectively. There are a number of other laws and executive orders which need to be considered. However, the primary compliance issues are with NEPA and NHPA.

The National Historic Preservation Act (NHPA) of 1966 requires Federal Agencies (FHWA) to consider the effects of their projects on Historic Properties. Historic Properties are typically historic and prehistoric sites, buildings, structures, or objects 50 years old or older, which are fairly unaltered, are representative of a type or the work of a master, have important information potential, or are associated with historically significant persons or events. Implementing regulations (36 CFR 800) define a process (typically referred to as the 106 process) for complying with the law. The process includes identification of cultural resources, evaluation of their eligibility to the National Register of Historic Places, determination of project effects on Historic Properties, and, if affected, resolution of adverse effects. This process requires input from the State Historic Preservation Office, involved government entities, Native American tribes that may attach religious or cultural value to Historic Properties in the project area, and other interested parties. This process can be quite involved and, if historic properties are identified and effects cannot be avoided, the process can take 2 or more years to complete. The time needed to complete the Section 106 process varies dependent upon the complexity of the project, the type of historic properties located on the project, and the concerns of consulting parties and/or the public.

The National Environmental Policy Act (NEPA) requires consideration of effects to cultural resources and is broader than NHPA. It is possible to have significant cultural resources under NEPA that are not Historic Properties under NHPA. However, we typically use the results of the Section 106 process to address cultural resources in terms of NEPA compliance. If consulting parties under NHPA, or the public under NHPA and/or NEPA, were to express concerns regarding a cultural resource which was not identified during the Section 106 process or did not qualify as an Historic Property, the resource may need to be considered significant in terms of NEPA and discussed in NEPA documentation.

Archaeological sites have the potential to be impacted by any kind of earth work, including disturbance to existing backslopes and sometimes existing roadbeds (city and rural), foreslopes,

or ditch bottoms. Many bridges are historic properties. Other types of cultural resources (e.g., buildings, traditional cultural properties) have potential to be impacted when a highway is being widened and additional right-of-way is being taken, and when a new highway, new lane, or city bypass are being proposed. Buildings adjacent to a highway through towns need to be considered if there will be any work (including sidewalk) outside the existing curb.

If 106 is listed in Milestone as a required activity or if it is believed the project has potential to impact cultural resources, contact the Cultural Resource Section (CRS) in the Design Division for guidance. All PCR cultural resource impact statements need to be created or reviewed by the Cultural Resource Section during PCR creation. All PCRs need to be routed to the Cultural Resource Section when the draft is distributed for comment. The Cultural Resource Section will coordinate with the PCR author on writing the solicitation-of-views letters to the State Historic Preservation Office (SHPO). The solicitation-of-views letters to Tribal Governments, THPOs, and Tribal Cultural Resource personnel will also be specific to their interests and needs.

Changes to a project that require reevaluation of the PCR Impact Statements need to be discussed with the Cultural Resource Section. These changes include, but are not limited to the following:

- alignment (horizontal and vertical)
- widening
- guardrail embankment
- safety work
- major drainage changes

When in doubt, discuss the issue with the Cultural Resource Section.

Notify the Engineering and Environmental Section in the Design Division if 106 is not listed in Milestone and the project has potential to impact cultural resources.

When a project is contracted to an engineering firm and that firm hires a cultural resource consultant to address NHPA and NEPA compliance, the following coordination issues need to be followed with the Cultural Resource Section:

- The engineering firm should contact the Cultural Resource Section prior to contracting with a cultural resource consultant. This is necessary to coordinate needs and clarify duties.

- The Cultural Resource Section conducts all consultation with the State Historic Preservation Office or Tribal Historic Preservation Office (as needed dependent upon project location), and the Native American community.

- The Cultural Resource Section reviews all reports completed by the cultural resource consultant

- The Cultural Resource Section reviews the Project Concept Report and sends the solicitation of views letters to the State Historic Preservation Office and Native American tribes.

- The Cultural Resource Section makes determinations, and submits documentation to the State Historic Preservation Office and Native American tribes.

II-03.12 Railroad Crossing Review

A Railroad Crossing Review should be completed for each railroad crossing within the project limits. The railroad crossing review should take place in conjunction with the field review conducted for the project concept report. This review is intended to acquire the necessary crossing information and to facilitate early coordination of the proposed highway improvements with the railroad crossing. This facilitation is necessary because of the lead time required (several months) to prepare a Railroad Crossing Application and to secure an agreement with the railroad and to coordinate railroad and contractor schedules.

The Railroad Crossing Review form is provided in Appendix II-03A. The review forms may be completed by the District during or after the field review. The completed forms should be submitted to the Design Division with a copy to the Planning and Programming Division. Separate forms should be filled out for each railroad crossing.

Under "other comments" note the following:

1. Review the need to operate on the railroad right of way. If so, the number of flagging days should be estimated at $500. / day and incorporated in the estimate as a SPECIAL PROJECT ITEM so Federal Funds may be obtained.

2. The actual hours of flagging will be monitored by the Project Engineer.

3. Note the type and condition of warning devices (flashing signals with gates, flashing signals without gates, cantilever flashing signals or cross bucks).

4. Note the existing visibility (quadrants with restricted sight distance and the degree of the restriction, i.e. elevator, tree, etc.)

5. Note if highway–rail grade crossing Advanced Warning Signs and Pavement Markings are present and the general condition.

6. Railroads require a detour to install a new surface. An on site review of the detour route should be made to determine the suitability to serve as a detour.

7. The crossing review should include crossings that are within 500 feet of an urban project and 1320 feet of a rural project, for the construction of a new highway or improvement of an existing roadway where Federal Funds will be used. This includes cross roads as well as the mainline. The crossing should not be open to unrestricted traffic until adequate warning devices are in place and operating properly.

The Planning and Programming Division will coordinate and obtain railroad crossing permits. The designer should advise and discuss the railroad crossing with the Planning and Programming Division - Railroad Programs Section. They will determine Warning Device adequacy.

The designer should begin coordinating with the Railroad Programs Section during the project concept report development and on an on-going basis as the preliminary roadway design becomes available.

II-03.13 Agreements

Preliminary Engineering Agreements and Cost Participation and Maintenance Agreements are used on projects that involve city participation. Maintenance Agreements are required when any project is located within corporate limits of any city where curb and gutter is installed. The Planning and Programming Division prepares agreements for cities with less than 5,000 population and the Local Government Division prepares agreements for cities with greater than 5,000 population.

The Preliminary Engineering Agreement and Cost Participation and Maintenance Agreement usually does not need to be documented within the project concept report or environmental documentation and the PCR author need only be aware of the purpose and need of these agreements. However, some projects are tied to changes in maintenance responsibilities, which are in turn tied to the selection of alternatives. The selection of alternatives should be documented to the extent possible.

Preliminary engineering agreements are normally signed when the project concept report is approved, 12 to 18 months before the bid opening. They ensure concurrence on design concepts, cost participation, and general maintenance.

The Cost Participation and Maintenance Agreements are developed by the Planning and Program Division and are normally signed 8 to 10 weeks before the bid opening. They are designed to give a more accurate estimate of the urban area's share of the project costs, and a more detailed description of maintenance responsibilities, than those in the preliminary engineering agreement.

Appendix II-03.A

RAILROAD CROSSING REVIEW

Tentative Project No. _____

Crossing Location _____

Railroad Crossing No. _____
(posted at crossing or see Planning & Programming Division - Railroad Program Section)

Date _____ Recorded By _____ Phone No. _____

Type of Crossing Surface in Place _____ Condition _____
(plank, full depth timber, asphalt, rubber, concrete)

Number of Tracks _____

Should Surface be Replaced: _____
(cost: timber $500 / lft, rubber $900 / lft, concrete $1,000 / lft)

Will Track Elevation Require Adjustment? _____ How Much? _____

Possible Detour to Accommodate Railroad Surface Work? _____
(New surface will close crossing about 1 week, detour to be NDDOT responsibility)

Note the following dimensions from to the attached figures:

1. Crossing Angle _____

2. Width of Roadway (present) _____ (proposed) _____

3. Width of Shoulders (present) _____ (proposed) _____

4. Length of Crossing Surface (present) _____ (proposed) _____
(measured along track centerline)

5. Location of Signal Foundations _____
(measured center roadway to center of signal base and center track to center of signal base)

6. Location of Controller Cabinet (Bungalow) _____
(measured to closest edges from track and edge of roadway)

Other Comments: _____

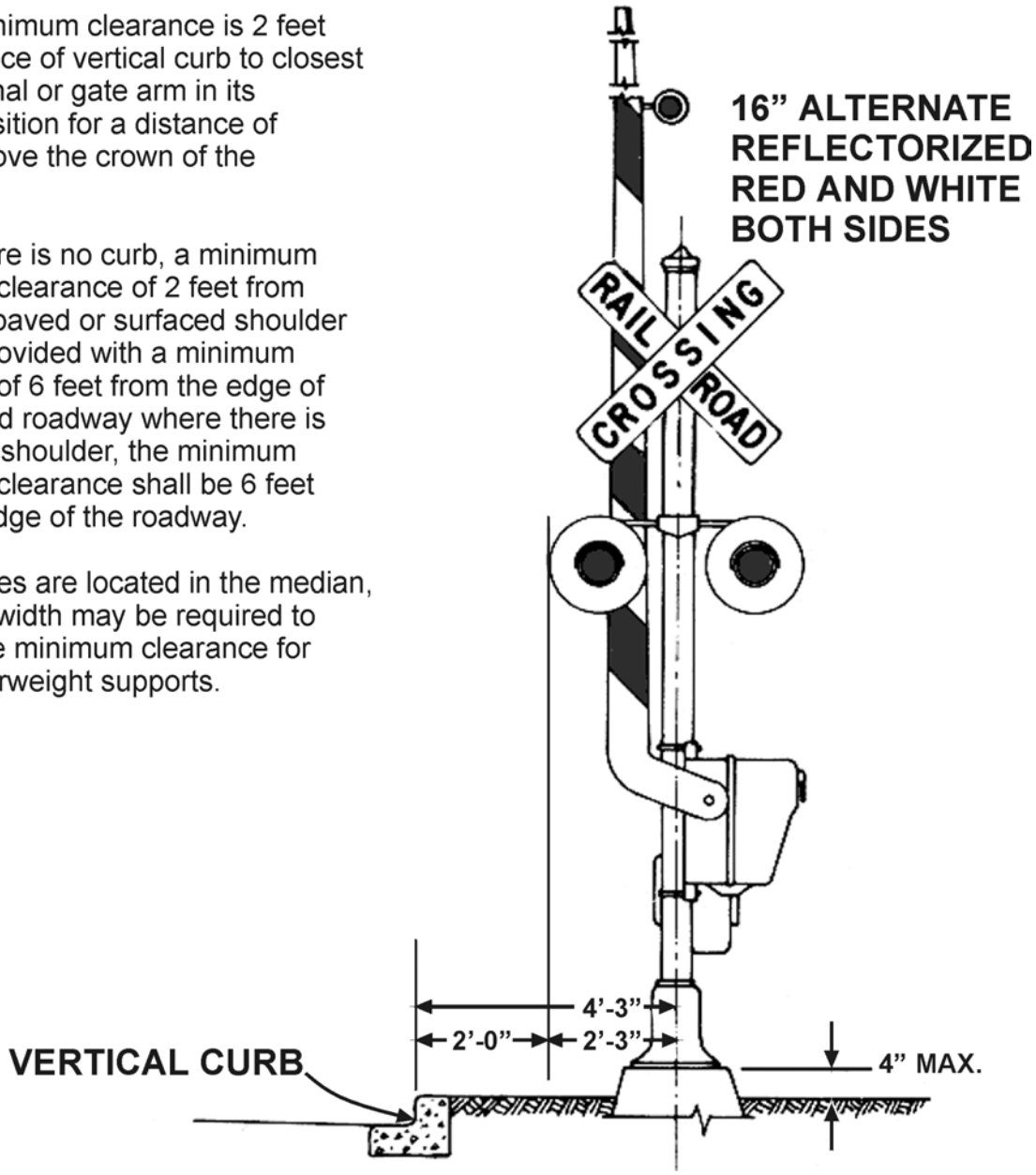
_____

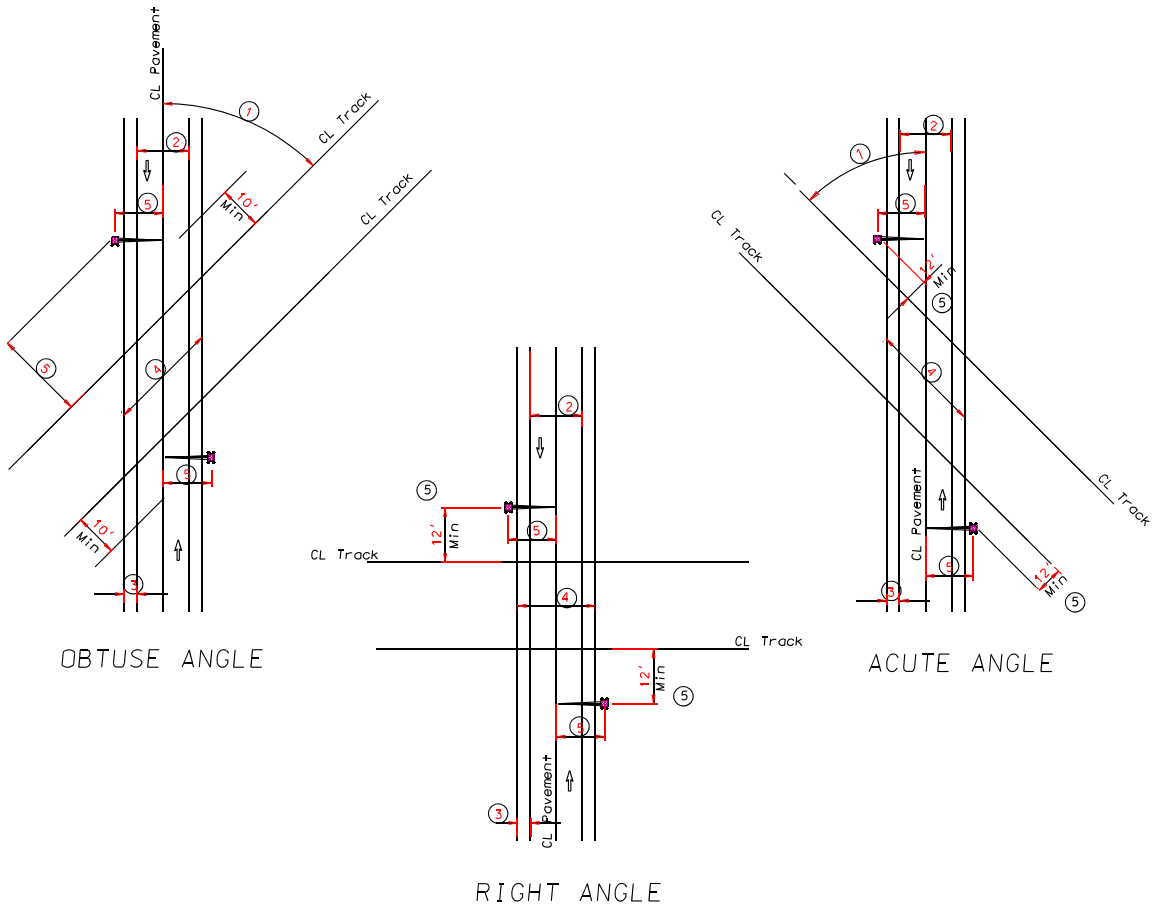
c: Planning and Programming Division - Railroad Programs Section

Typical minimum clearance is 2 feet from the face of vertical curb to closest part of signal or gate arm in its upright position for a distance of 17 feet above the crown of the roadway.

Where there is no curb, a minimum horizontal clearance of 2 feet from edge of a paved or surfaced shoulder shall be provided with a minimum clearance of 6 feet from the edge of the traveled roadway where there is no curb or shoulder, the minimum horizontal clearance shall be 6 feet from the edge of the roadway.

Where gates are located in the median, additional width may be required to provide the minimum clearance for the counterweight supports.




CL Pavement
CL Track
CL Track
10' Min
10' Min
OBTUSE ANGLE
CL Track
12' Min
CL Track
12' Min
CL Pavement
RIGHT ANGLE
CL Track
CL Track
12' Min
CL Pavement
12' Min
ACUTE ANGLE

Appendix II-03 B

Distribution Guidelines	Project Concept Report					EA	FONSI	EIS		PCR or EA	Public Hearing Transcript	Summation of Public Hearing
	Final MDF, I, PM Projects Only	Preventive Maintenance (no earthwork)		Resurfacing Restoration Rehabilitation Reconstruction				Draft	Final	Appendixes if bound separately		
		Draft	Final	Draft	Final							
writer - main author			1		1	1	1	1	1	1	1	1
Deputy Director - Grant Levi			#		#	#	#	1	1	#	1	#
Project Development - Francis Ziegler		1	1	1	1	1	1	1	1		1	1
Transportation Program Services - Tim Horner		1	1	1	1	1	1	1	1		1	1
Operations - Gary Berreth		1	1	1	1	1	1	1	1		1	1
Bridge				1	2	2	2	1	1		1	2
Consultant Agreement Section (district and consultant projects only)			1	1	1	1	1	1	1		1	1
Construction Services			1	1	1	1	1	1	1		1	1
Design - Mark Gaydos (to be routed to designer-technical support person)			1	1	##	1	1	1	1	##	1	1
Design - ROW				1	1	1	1	1	1		1	1
Design - Traffic			1	1	1	1	1	1	1		1	1
Design - Jon Collado ^	1		2	1	2	2	2	2	2	3	2	2
Design - Kent Good				1		1		1				
Information Technology Division - Diane Gunsch				•	•	•	•	•	•	•		•
Local Government (urban projects only, city population over 5000)			1	1	1	1	1	1	1		1	1
Materials and Research			1	1	1	1	1	1	1	1	1	1
Maintenance and Engineering Services	1		1	1	1	1	1	1	1		1	1
Planning and Programming	1		2	1	2	2	2	1	1		1	2
District	1	1	2	2	2	2	2	2	2	1	2	2
City (urban projects only, city population over 5000)				2	2	2	2	2	2	1	2	2
FHWA				1	1	2	2	4+23 ●	4+18 ●	same as body	1	1
Requested By Public or Other Governmental Agencies				i	i	i	i ■	i 3	i 3	i	i	i
State Library "						8	8	8	8	8 (EA-EIS)	8	
Central File	original		original		original	original	original	original	original	original	original	original
Total (See next page for supplemental footnotes.)	5	4	15-17	16-20	18-22	28+	28+	53+	47+	8+	26+	19-23

For signature Only

For Categorical Exclusion Signature Only

^ The Engineering and Environmental Design Section stores extra copies for quick reference. This policy saves time in the long run because additional copies are usually needed for various reasons. These extra copies are kept for at least 3 years. If extra copies are needed after the original distribution feel free to take an extra copy from the Engineering and Environmental Section. If you have an extra copy that you are no longer using please file the report in the Engineering and Environmental Section library (filed by Highway number and mile point). At least 1copy of each report is to remain in the Engineering and Environment Section library for quick reference. This copy is stamped "file copy".

3 See FHWA technical Advisory, pages 40-43, VII. Distribution of EIS's and Section 4(f) Evaluation.

– Distribution of EISs to the EPA and DOI is discussed in VII.A.3 of the FHWA Technical Advisory. These distributions will be handled by the FHWA. The NDDOT needs only to supply the document.

– See FHWA technical Advisory, page 10, IV Distribution of EAs and FONSIs

" Required by Century Code 54-24-09.

3. PCR Author to Inform Project Development Administrative Assistant when project involves "Intelligent Transportation Systems". Environmental Document will be sent to ITD when ITS involved.

4) PCR Author to Inform Project Development Administrative Assistant when additional copies are needed.

Appendix II-3C -Approach Slope Flattening Wetland Impact Tables

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					32						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.012	0.011	0.010	0.010	0.009	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2	0.009	0.008	0.008	0.007	0.007	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
3	0.006	0.006	0.006	0.005	0.005	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4	0.004	0.004	0.004	0.003	0.003	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
5	0.003	0.002	0.002	0.002	0.002	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
6	0.001	0.001	0.001	0.001	0.001	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
7	0.001	0.000	0.000	0.000	0.000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					34						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.013	0.012	0.012	0.011	0.010	0.010	0.009	N.A.	N.A.	N.A.	N.A.
2	0.010	0.009	0.009	0.008	0.008	0.007	0.007	N.A.	N.A.	N.A.	N.A.
3	0.007	0.007	0.006	0.006	0.006	0.005	0.005	N.A.	N.A.	N.A.	N.A.
4	0.005	0.005	0.004	0.004	0.004	0.003	0.003	N.A.	N.A.	N.A.	N.A.
5	0.003	0.003	0.003	0.002	0.002	0.002	0.002	N.A.	N.A.	N.A.	N.A.
6	0.002	0.002	0.001	0.001	0.001	0.001	0.001	N.A.	N.A.	N.A.	N.A.
7	0.001	0.001	0.001	0.000	0.000	0.000	0.000	N.A.	N.A.	N.A.	N.A.

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					36						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	N.A.	N.A.
2	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	N.A.	N.A.
3	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	N.A.	N.A.
4	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	N.A.	N.A.
5	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	N.A.	N.A.
6	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	N.A.	N.A.
7	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	N.A.	N.A.

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					38						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.015	0.015	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009
2	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007
3	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005
4	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003
5	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
6	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
7	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					42						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.018	0.017	0.017	0.016	0.015	0.015	0.014	0.013	0.013	0.012	0.012
2	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009
3	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006
4	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004
5	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003
6	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
7	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					44						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.019	0.019	0.018	0.017	0.017	0.016	0.015	0.015	0.014	0.013	0.013
2	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010
3	0.012	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
4	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005
5	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003
6	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
7	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

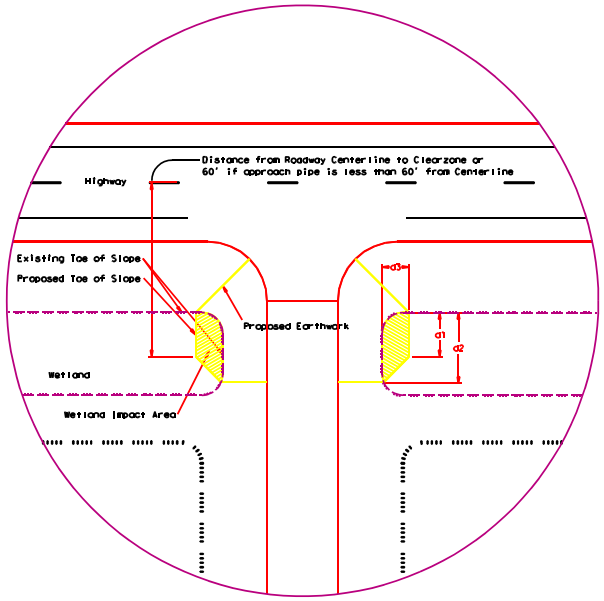
Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					48						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.022	0.021	0.021	0.020	0.019	0.019	0.018	0.017	0.017	0.016	0.015
2	0.018	0.017	0.017	0.016	0.015	0.015	0.014	0.014	0.013	0.013	0.012
3	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.009
4	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007
5	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004
6	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
7	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					50						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.023	0.022	0.022	0.021	0.021	0.020	0.019	0.019	0.018	0.017	0.017
2	0.019	0.018	0.018	0.017	0.017	0.016	0.015	0.015	0.014	0.014	0.013
3	0.015	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.011	0.010
4	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007
5	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005
6	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
7	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					54						
Approach Pipe within 60' of mainline Centerline					no						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.026	0.025	0.024	0.024	0.023	0.022	0.022	0.021	0.021	0.020	0.019
2	0.021	0.020	0.020	0.019	0.019	0.018	0.018	0.017	0.017	0.016	0.015
3	0.017	0.016	0.016	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.012
4	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009
5	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006
6	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
7	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002

Area of Impacted Wetland (acres, based on information below)											
Roadway Clearzone Distance From Centerline (ft)					NA						
Approach Pipe within 60' of mainline Centerline					yes						
Ditch Depth (ft)					4						
Approach Inslope	Distance from Mainline Centerline to Toe of Hwy Inslope										
(run to rise, x to 1)	28	29	30	31	32	33	34	35	36	37	38
1	0.030	0.029	0.028	0.028	0.027	0.026	0.026	0.025	0.024	0.024	0.023
2	0.024	0.024	0.023	0.023	0.022	0.021	0.021	0.020	0.020	0.019	0.019
3	0.019	0.019	0.018	0.018	0.017	0.017	0.017	0.016	0.016	0.015	0.015
4	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.012	0.011	0.011
5	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008
6	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005
7	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002

Appendix II-3D - Wetland Calculation Guidance Drawing



Approach Slope Flattening

For projects with safety work, one calculation describing the wetland area impacted from a typical approach safety improvement can be used for all approaches.

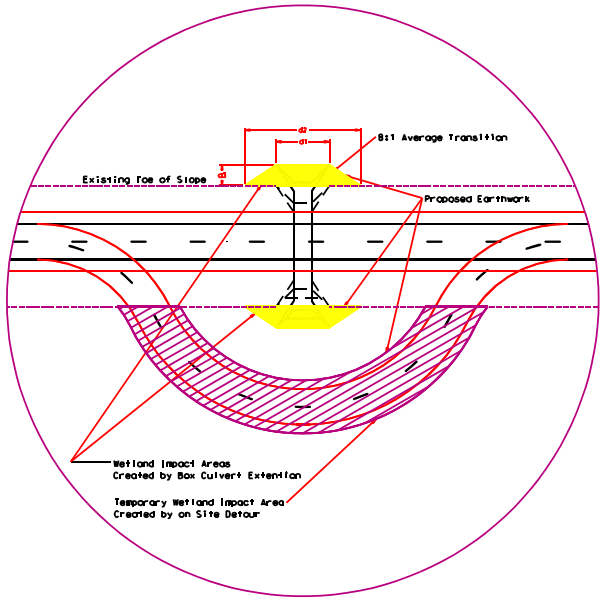
Approach Slope Flattening Example Calculations:

d1 = 10'
d2 = 26'
d3 = 16'
area = (d1+d2)1/2 * d3
= (10+26)1/2 * 16
= 288 SF = 0.007 acres

Wetland Impact Area = 0.007 acres x two sides x 23 approaches
= 0.32 acres

See "Approach Slope Flattening Wetland Impact Tables" for various calculated areas. An explanation of how the above variables are used in the tables is given below.

d1 = (distance from centerline to clearzone or 60' if approach pipe within 60' of roadway centerline) - distance from centerline to toe of slope
d2 = d1 + d3
d3 = ditch depth * (8 - approach slope)
Approach slope given in terms of run value (e.g. 4:1 slope, run value = 4)



Box Culvert Extention

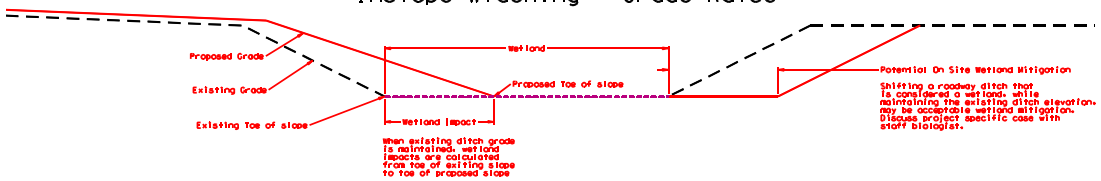
Drawing Not to Scale

Box Culvert Example Calculations:
d1 = 36'
d2 = 36+2*(d3*8) = 148'
d3 = 7'
area = (d1+d2)1/2 * d3
= (36+148)1/2 * 7
= 644 SF = 0.015 acres

Wetland Impact Area = 0.015 acres x two sides
= 0.03 acres

Temporary Wetland Impact Area (Detour)
Area = length of detour out side of existing roadway toe of slope * width of detour
= 1500' * 40' = 60000 SF = 1.38 acres

Inslope Widening - Grade Raise



Wetland Calculation Guidence